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PATENT
Customer No. 22,852
Attorney Docket No. 08790.0011

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
John P. DONOGHUE et al.) Group Art Unit: 3763
Application No.: 10/717,924) Examiner: Not yet Assigned.
Filed: November 21, 2003)
For: AGENT DELIVERY SYSTEMS)
AND RELATED METHODS)
UNDER CONTROL OF)
BIOLOGICAL ELECTRICAL)
SIGNALS)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(b)

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b), Applicants bring to the attention of the Examiner the documents on the attached IDS Form PTO/SB/08. This Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits for the above-referenced application.

Copies of the listed foreign patent documents and non-patent literatures are attached. Copies of the U.S. patents and published U.S. patent applications are not enclosed.

Applicants respectfully request that the Examiner consider the listed documents and indicate that they were considered by making appropriate notations on the attached IDS Form.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If the Examiner applies any of the documents as prior art against any claim in the application and Applicants determine that the cited documents do not constitute "prior art" under United States law, Applicants reserve the right to present to the Patent Office the relevant facts and law regarding the appropriate status of such documents.

Applicants further reserve the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

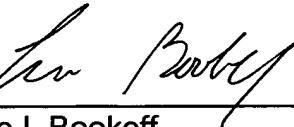
If there is any fee due in connection with the filing of this Statement, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: December 27, 2004

By: _____


Leslie I. Bookoff
Reg. No. 38,084

DEC 27 2004

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet

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of

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Complete if Known

Application Number	10/717,924
Filing Date	November 21, 2003
First Named Inventor	John P. DONOGHUE
Art Unit	3763
Examiner Name	Unassigned
Attorney Docket Number	08790.0011

U.S. PATENTS AND PUBLISHED U.S. PATENT APPLICATIONS					
Examiner Initials	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Issue or Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-2001/0023368	9/20/2001	Black et al.	
		US-2001/0027336	10/4/2001	Gielen et al.	
		US-2001/0029391	10/11/2001	Gluckman et al.	
		US-2001/0051819	12/13/2001	Fischell et al.	
		US-2001/0056290	12/27/2001	Fischell et al.	
		US-2002/0002390	1/3/2002	Fischell et al.	
		US-2002/0013612	1/31/2002	Whitehurst	
		US-2002/0016638	2/7/2002	Mitra et al.	
		US-2002/0077620	6/20/2002	Sweeney et al.	
		US-2002/0099412	7/25/2002	Fischell et al.	
		US-2002/0169485	11/14/2002	Pless et al.	
		US-2003/0082507	5/1/2003	Stypulkowski	
		US-2003/0083716	5/1/2003	Nicolelis et al.	
		US-2003/0093129	5/15/2003	Nicolelis et al.	
		US-3,837,339	9/24/74	Aisenberg et al.	
		US-3,850,161	11/26/1974	Liss	
		US-4,055,175	10/25/1977	Clemens et al.	
		US-4,146,029	3/27/1979	Ellinwood, Jr.	
		US-4,294,245	10/13/1981	Bussey	
		US-4,360,031	11/23/1982	White	
		US-4,461,304	7/24/1984	Kuperstein	
		US-4,633,889	1/6/1987	Talalla et al.	
		US-4,690,142	9/1/1987	Ross et al.	
		US-4,837,049	6/6/1989	Byers et al.	
		US-4,865,048	9/12/1989	Eckerson	
		US-4,878,913	11/7/1989	Aebischer et al.	
		US-4,883,666	11/28/1989	Sabel et al.	
		US-4,969,468	11/13/1990	Byers et al.	
		US-5,037,376	8/6/1991	Richmond et al.	

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				<i>First Named Inventor</i> John P. DONOGHUE
				<i>Art Unit</i> 3763
				<i>Examiner Name</i> Unassigned
				<i>Attorney Docket Number</i> 08790.0011

U.S. PATENTS AND PUBLISHED U.S. PATENT APPLICATIONS

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		Number-Kind Code ² (if known)			
		US-5,081,990	1/21/1992	Deletis	
		US-5,119,832	6/9/1992	Xavier	
		US-5,156,844	10/20/1992	Aebischer et al.	
		US-5,215,088	6/1/1993	Normann et al.	
		US-5,325,865	7/5/1994	Beckman et al.	
		US-5,361,760	11/8/1994	Normann et al.	
		US-5,423,877	6/13/1995	Mackey	
		US-5,445,608	8/29/1995	Chen et al.	
		US-5,458,631	10/17/1995	Xavier	
		US-5,474,547	12/12/1995	Aebischer et al.	
		US-5,617,871	4/8/1997	Burrows	
		US-5,638,826	6/17/1997	Wolpaw et al.	
		US-5,687,291	11/11/1997	Smyth	
		US-5,692,517	12/2/1997	Junker	
		US-5,697,951	12/16/1997	Harpstead et al.	
		US-5,702,432	12/30/1997	Chen et al.	
		US-5,713,923	2/3/1998	Ward et al.	
		US-5,735,885	4/7/1998	Howard, III et al.	
		US-5,758,651	6/2/1998	Nygard et al.	
		US-5,797,898	8/25/1998	Santini, Jr. et al.	
		US-5,814,089	9/29/1998	Stokes et al.	
		US-5,843,093	12/1/1998	Howard, III	
		US-5,843,142	12/1/1998	Sultan	
		US-5,855,801	1/5/1999	Lin et al.	
		US-5,873,840	2/23/1999	Neff	
		US-5,928,228	7/27/1999	Kordis et al.	
		US-5,938,688	8/17/1999	Schiff	
		US-5,938,689	8/17/1999	Fischell et al.	
		US-5,938,690	8/17/1999	Law et al.	

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		US-6,001,065	12/14/1999	DeVito	
		US-6,006,124	12/21/1999	Fischell et al.	
		US-6,016,449	1/18/2000	Fischell et al.	
		US-6,024,700	2/15/2000	Nemirovski et al.	
		US-6,024,702	2/15/2000	Iversen	
		US-6,027,456	2/22/2000	Feler et al.	
		US-6,038,477	3/14/2000	Kayyali	
		US-6,061,593	5/9/2000	Fischell et al.	
		US-6,086,582	6/11/2000	Altman et al.	
		US-6,091,015	7/18/2000	del Valle et al.	
		US-6,092,058	7/18/2000	Smyth	
		US-6,113,553	9/5/2000	Chubbuck	
		US-6,125,300	9/26/2000	Weijand et al.	
		US-6,128,538	10/3/2000	Fischell et al.	
		US-6,134,474	10/17/2000	Fischell et al.	
		US-6,154,678	11/28/2000	Lauro	
		US-6,161,045	12/12/2000	Fischell et al.	
		US-6,163,725	12/19/2000	Peckham et al.	
		US-6,169,981	1/2/2001	Werbos	
		US-6,171,239	1/9/2001	Humphrey	
		US-6,175,762	1/16/2001	Kirkup et al.	
		US-6,181,965	1/30/2001	Loeb et al.	
		US-6,185,455	2/6/2001	Loeb et al.	
		US-6,216,045	4/10/2001	Black et al.	
		US-6,224,549	5/1/2001	Drongelen	
		US-6,240,315	5/29/2001	Mo et al.	
		US-6,254,536	7/3/2001	DeVito	
		US-6,263,237	7/17/2001	Rise	
		US-6,280,394	8/28/2001	Maloney et al.	

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		Number-Kind Code ² (if known)			
		US-6,309,410	10/30/2001	Kuzma et al.	
		US-6,313,093	11/6/2001	Frey, II	
		US-6,319,241	11/20/2001	King et al.	
		US-6,353,754	3/5/2002	Fischell et al.	
		US-6,354,299	3/12/2002	Fischell et al.	
		US-6,356,784	3/12/2002	Lozano et al.	
		US-6,358,202	3/19/2002	Arent	
		US-6,360,122	3/19/2002	Fischell et al.	
		US-6,427,086	7/30/2002	Fischell et al.	
		US-6,436,708	8/20/2002	Leone et al.	
		US-6,459,936	10/1/2002	Fischell et al.	
		US-6,466,822	10/15/2002	Pless	
		US-6,473,639	10/29/2002	Fischell et al.	
		US-6,480,743	11/12/2002	Kirkpatrick et al.	
		US-6,620,415	9/16/2003	Donovan	

Note: Copies of the U.S. Patent Documents are not Required in IDS filed after October 21, 2004

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	Translation ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				
		WO 01/43635	6/21/2001	Partha		
		WO 03/035165	May 1, 2003	Nicolelis et al.		
		WO 03/037231	May 8, 2003	Nicolelis et al.		

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		Kensall D. Wise et al., "An Integrated-Circuit Approach to Extracellular Microelectrodes," IEEE Transactions on Biomedical Engineering, Vol. BME-17, No. 3, July 1970, pp 238-247	
		Donald R. Humphrey et al., "Predicting Measures of Motor Performance from Multiple Cortical Spike Trains," Science, New Series, Volume 170, Issue 3959, November 13, 1970, pp 758-762	
		A. Bohg, "Ethylene Diamine-Pyrocatechol-Water Mixture Shows Etching Anomaly in Boron-Doped Silicon," Journal of the Electrochemical Society, Vol. 118, No. 2, February 1971, pp 401-402	
		Donald R. Humphrey, "Relating Motor Cortex Spike Trains to Measures of Motor Performance," Department of Physiology, Emory University, Brain Research, No. 40, 1972, pp 7-18	
		Arnold Starr et al., "An Evaluation of Photoengraved Microelectrodes for Extracellular Single-Unit Recording," IEEE Transactions on Biomedical Engineering, Vol. BME-20, No. 4, July 1973, pp 291-293	
		Kensall D. Wise et al., "A Low-Capacitance Multielectrode Probe for Use in Extracellular Neurophysiology," IEEE Transactions on Biomedical Engineering, Vol. BME-22, No. 3, May 1975, pp 212-219	
		V. B. Mountcastle et al., "Posterior Parietal Association Cortex of the Monkey: Command Functions for Operations Within Extrapersonal Space," The Journal of Neurophysiology, Vol. 38, No. 4, 1975, pp 871-908	
		Edward M. Schmidt, "Single Neuron Recording From Motor Cortex as a Possible Source of Signals for Control of External Devices," Annals of Biomedical Engineering, Vol. 8, 1980, pp 339-349	
		A. J. S. Summerlee et al., "The effect of behavioural arousal on the activity of hypothalamic neurons in unanaesthetized, freely moving rats and rabbits," Proceedings of the Royal Society of London Series B-Biological Sciences, January 1982, pp 263-272	
		Spencer L. BeMent, et al., "Solid-State Electrodes for Multichannel Multiplexed Intracortical Neuronal Recording," IEEE Transactions on Biomedical Engineering, Vol. BME-33, No. 2, February 1986, pp 230-241	
		Camilo Toro et al., "8-12 Hz rhythmic oscillations in human motor cortex during two-dimensional arm movements: evidence for representation of kinematic parameters," Departments of Neurology, Neurosurgery, and Physiology, University of Minnesota; MINCEP Epilepsy Care, P.A.; The Minnesota Epilepsy Group of United and St. Paul Children's Hospital; and Human Motor Control Section, National Institute of Neurological Disorders and Stroke, National Institutes of Health, Electroencephalography and Clinical Neurophysiology, No. 93, 1994, pp 390-403	
		Anthony L. Owens et al., "Multi-electrode array for measuring evoked potentials from surface of ferret primary auditory cortex," Journal of Neuroscience Methods, Vol. 58, Nos. 1/2, May 1995, pp 209-220	
		Miguel A. L. Nicolelis et al., "Sensorimotor Encoding by Synchronous Neural Ensemble Activity at Multiple Levels of the Somatosensory System," Science, Vol. 268, June 2, 1995, pp 1353-1358	
		Jerome N. Sanes et al., "Shared Neural Substrates Controlling Hand Movements in Human Motor Cortex," Science, Vol. 268, June 23, 1995, pp 1775-1777	
		D.M. Halliday et al., "A Framework for the Analysis of Mixed Time Series/Point Process Data-Theory and Application to the Study of Physiological Tremor, Single Motor Unit Discharges and Electromyograms," Progress in Biophysics Molecular Biology, Vol. 64, Nos. 2/3, 1995, pp 237-278	
		Qing Bai et al., "A High-Yield Process for Three-Dimensional Microelectrode Arrays," Solid-State Sensor and Actuator Workshop, Hilton Head, South Carolina, June 2-6, 1996, pp 262-265	
		Apostolos P. Georgopoulos et al., "Neuronal Population Coding of Movement Direction," Science, Vol. 233, September 26, 1986, pp 1416-1419	
		Kenneth L. Drake et al., "Performance of Planar Multisite Microprobes in Recording Extracellular Single-Unit Intracortical Activity," IEEE Transactions on Biomedical Engineering, Vol. 35, No. 9, September 1988, pp 719-732	
		Patrick K. Campbell et al., "A chronic intracortical electrode array: Preliminary results," Journal of Biomed. Material Res.: Applied Biomaterials, Vol. 23, No. 2, 1989, pp 245-259	
		Andrew R. Mitz et al., "Learning-dependent Neuronal Activity in the Premotor Cortex: Activity during the Acquisition of Conditional Motor Associations," The Journal of Neuroscience, Vol. 11, No. 6, June 1991, pp 1855-1872	

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		Patrick K. Campbell et al., "A Silicon-Based, Three-Dimensional Neural Interface: Manufacturing Processes for an Intracortical Electrode Array," IEEE Transactions, 1991, pp 758-768	
		A. C. Hoogerwerf et al., "A Three-Dimensional Neural Recording Array," IEEE Transactions, 1991, pp 120-123	
		Gregory T. A. Kovacs et al., "Regeneration Microelectrode Array for Peripheral Nerve Recording and Stimulation," Transactions on Biomedical Engineering, Vol. 39, No. 9, September 1992, pp 893-902	
		Kelly E. Jones et al., "A Glass/Silicon Composite Intracortical Electrode Array," Annals of Biomedical Engineering, Vol. 20, 1992, pp 423-437	
		Miguel A. L. Nicolelis et al., "Induction of immediate spatiotemporal changes in thalamic networks by peripheral block of ascending cutaneous information," Letters to Nature, Vol. 361, February 11, 1993, pp 533-536	
		Reinhard Eckhorn et al., "A new method for the insertion of multiple microprobes into neural and muscular tissue, including fiber electrodes, fine wires, needles and microsensors," Journal of Neuroscience Methods, Vol. 49, Nos. 1/2, 1993, pp 175-179	
		Craig T. Nordhausen et al., "Optimizing recording capabilities of the Utah Intracortical Electrode Array," Brain Research, Vol. 637, Nos. 1/2, February 21, 1994, pp 27-36	
		Jamille F. Hetke et al., "Silicon Ribbon Cables for Chronically Implantable Microelectrode Arrays," IEEE Transactions on Biomedical Engineering, Vol. 41, No. 4, April 1994, pp 314-321	
		Miguel A. L. Nicolelis et al., "Spatiotemporal Structure of Somatosensory Responses of Many-Neuron Ensembles in the Rat Ventral PosteriorMedial Nucleus of the Thalamus," The Journal of Neuroscience, Vol. 14, No. 6, June 1994, pp 3511-3532	
		Arnold C. Hoogerwerf et al., "A Three-Dimensional Microelectrode Array for Chronic Neural Recording," IEEE Transactions on Biomedical Engineering, Vol. 41, No. 12, December 1994, pp 1136-1146	
		Changhyun Kim et al., "A 64-Site Multishank CMOS Low-Profile Neural Stimulating Probe," IEEE Journal of Solid-State Circuits, Vol. 31, No. 9, September 1996, pp 1230-1238	
		Gwo-Ching Chang et al., "Real-time implementation of electromyogram pattern recognition as a control command of man-machine interface," Medical Engineering Phys., Vol. 18, No. 7, 1996, pp 529-537	
		P. Nisbet, "Integrating assistive technologies: current practices and future possibilities," Med. Eng. Phys., Vol. 18, No. 3, 1996, pp 193-202	
		Miguel A. L. Nicolelis et al., "Reconstructing the Engram: Simultaneous, Multisite, Many Single Neuron Recordings," Nueron, Vol. 18, April 1997, pp 529-537	
		TR Scott et al., "The Monitoring of Tendon Tension with an Implantable Intratendon Probe and Its Use in the Control of Neuroprostheses," IEEE Transactions on Rehabilitation Engineering, Vol. 5, No. 2, June 1997, pp 233-235	
		Barbara M. Faggin et al., "Immediate and simultaneous sensory reorganization at cortical and subcortical levels of the somatosensory system," Proc. Natl. Acad. Science USA, Vol. 94, August 1997, pp 9428-9433	
		Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anesthesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-05, Including Summary Statement, October, 1997	
		Robert M. Bradley et al., "Long term chronic recordings from peripheral sensory fibers using a sieve electrode array," Journal of Neuroscience Methods, Vol. 73, 1997, pp 177-186	
		David K. Warland et al., "Decoding Visual Information From a Population of Retinal Ganglion Cells," The American Physiological Society, 1997, pp 2336-2350	
		Steven P. Wise et al., "Premotor and Parietal Cortex: Corticocortical Connectivity and Combinatorial Computations," Annual Review of Neuroscience, Vol. 20, 1997, pp 25-42	
		P.R. Kennedy et al., "Restoration of neural output from a paralyzed patient by a direct brain connection," NeuroReport, Vol. 9, No. 8, June 1998 pp 1707-1711	

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		Paolo Dario et al., "Neural Interfaces for Regenerated Nerve Stimulation and Recording," IEEE Transactions on Rehabilitation Engineering, Vol. 6, No. 4, December 1998, pp 353-363	
		Nicholas G. Hatsopoulos et al., "Information about movement direction obtained from synchronous activity of motor cortical neurons," Proc. Natl. Acad. Sci. USA, Vol. 95, December 1998, pp 15706-15711	
		John P. Donoghue et al., "Neural Discharge and Local Field Potential Oscillations in Primate Motor Cortex During Voluntary Movements," The American Physiological Society, 1998, pp 159-173	
		Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anesthesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-06, April, 1999	
		Gregor Rainer et al., "Prospective Coding for Objects in Primate Prefrontal Cortex," The Journal of Neuroscience, Vol. 19, No. 13, July 1, 1999, pp 5493-5505	
		John K. Chapin et al., "Real-time control of a robot arm using simultaneously recorded neurons in the motor cortex," Department of Neurobiology and Anatomy, MCP Hahnemann School of Medicine; and Department of Neurobiology, Duke University Medical Center, Nature Neuroscience, Volume 2, No. 7, July 1999, pp 664-670	
		E. M. Maynard et al, "Neuronal Interactions Improve Cortical Population Coding of Movement Direction," The journal of Neuroscience, Vol. 19, No. 18, September 15, 1999, pp. 8083-8093	
		F. Gандolfo et al., "Cortical correlates of learning in monkeys adapting to a new dynamical environment," PNAS, Vol. 97, No. 5, February 29, 2000, pp 2259-2263	
		J. F. Marsden et al., "Organization of Cortical Activities Related to Movement in humans," The Journal of Neuroscience, Vol. 20, No. 6, March 15, 2000, pp 2307-2314	
		D. Gareth Evans et al., "Controlling mouse Pointer Position Using an Infrared Head-Operated Joystick," IEEE Transaction on Rehabilitation Engineering, Vol. 8, No. 1, March 2000, pp 107-117	
		Qing Bai et al., "A High-Yield Microassembly Structure For Three-Dimensional Microelectrode Arrays," IEEE Transactions on Biomedical Engineering, Vol. 47, No. 3, March 2000, pp 281-289	
		Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anesthesia," Department of Health and Human Services, Public health Service, Grant No. 2 R01 DE11451-07, April, 2000	
		Nicolelis, Miguel A.L., "Corticofugal Modulation of Tactile Sensory Processing," Department of Health and Human Services, Public Health Service, National Institute of Dental and Craniofacial Research of the National Institutes of health, Grant No. 1 R01 DE013810-01 A1, June, 2000	
		Jonathan R. Wolpaw et al., "Brain-Computer Interface Technology: A Review of the First International Meeting," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 2, June 2000, pp 164-173	
		Simon P. Levine et al., "A Direct Brain Interface Based on Event-Related potentials," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 2, June 2000, pp 180-185	
		Robert E. Isaacs et al., "Work Toward Real-Time Control of a cortical Neural Prothesis," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No 2, June 2000, pp 196-198	
		Scott Makeig et al., "A Natural Basis for Efficient Brain-Actuated Control, IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 2, June 2000, pp 208-211	
		Johan Wessberg et al., "Real-time prediction of hand trajectory by ensembles of cortical neurons in primates," Nature, Vol. 408, November 16, 2000, pp 361-365	
		Jerome N. Sanes et al., "Plasticity and Primary Motor Cortex," Annual Reviews, Neuroscience, Brown University, Library, Vol. 23, 2000, pp 393-415	
		Jonathan C. Jarvis et al., "The application and technology of implantable neuromuscular stimulators: an introduction and overview," Medical Engineering & Physics, No. 23, January 11, 2001, pp 3-7	
		Miguel A. L. Nicolelis, "Real-time direct interfaces between the brain and electronic and mechanical devices could one day be used to restore sensory and motor functions lost through injury or disease. Hybrid brain-machine interfaces also have the potential to enhance our perceptual, motor and cognitive capabilities by revolutionizing the way we use computers and interact with remote environments," Nature, Vol. 409, January 18, 2001, pp 403-407	

Examiner Signature		Date Considered	
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of

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Application Number	10/717,924
Filing Date	November 21, 2003
First Named Inventor	John P. DONOGHUE
Art Unit	3763
Examiner Name	Unassigned
Attorney Docket Number	08790.0011

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Translation ⁶
		Gerald E. Loeb et al., "BION™ system for distributed neural prosthetic interfaces," Medical Engineering & Physics, Vol. 23, January 26, 2001, pp 9-18	
		Patrick J. Rousche et al., "Flexible Polyimide-Based Intracortical Electrode Arrays with Bioactive Capability," IEEE Transactions on Biomedical Engineering, Vol. 48, No. 3, March 2001, pp 361-371	
		Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anesthesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-08, April, 2001	
		Qing Bai et al., "Single-Unit Neural Recording with Active Microelectrode Arrays," IEEE Transactions on Biomedical Engineering, Vol. 48, No. 8, August 2001, pp 911-920	
		David L. Zealair et al., "The Biocompatibility, Integrity, and Positional Stability of an Injectable Microstimulator for Reanimation of the Paralyzed Larynx," IEEE Transactions on Biomedical Engineering, Vol. 48, No. 8, August 2001, pp 890-897	
		Dawn M. Taylor et al., "Using Virtual Reality to Test the Feasibility of Controlling an Upper Limb Fes System Directly from Multiunit Activity in the Motor Cortex," Arizona State University; and The Neurosciences Institute, Summer 2001, pp 1-3	
		Ranu Jung et al., "Real-Time Interaction Between a Neuromorphic Electronic Circuit and the Spinal Cord," IEEE Transactions on Neural Systems and Rehabilitation Engineering, Vol. 9, No. 3, September 2001, pp 319-326	
		Shay Shoham, "Advances Towards an Implantable Motor Cortical Interface," The University of Utah, December 2001, pp 1-157	
		John K. Chapin et al., "Neural Prostheses for Restoration of Sensory and Motor Function," CRC Press, LLC, 2001, Chapters 6, 8 and 9 pp 179-219, pp 235-261, pp 263-283	
		Andrew B. Schwartz et al., "Extraction algorithms for cortical control of arm prosthetics," The Neuroscience Institute; and Department of Bioengineering, Arizona State University, 2001, pp 701-707	
		István Ulbert et al., "Multiple microelectrode-recording system for human intracortical applications," Journal of Neuroscience Methods, Vol. 106, 2001, pp 69-79	
		Mijail D. Serruya et al., "Instant Neural Control of a Movement Signal," Nature, Vol. 416, March 14, 2002, pp 141-142	
		Nicolelis, Miguel A.L., "Corticofugal Modulation of Tactile Sensory Processing," Department of Health and Human Services, Public health Service, National Institute of Dental and Craniofacial Research of the National Institutes of Health, Grant No. 5 R01 DE013810-02, March, 2002	
		Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anesthesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-09, April, 2002	
		Dawn M. Taylor et al., "Direct Cortical Control of 3D Neuroprosthetic Devices," Science, Vol. 296, June 7, 2002, pp 1829-1832	
		John P. Donoghue, "Connecting cortex to machines: recent advances in brain interfaces," Nature Neuroscience Supplement, Vol. 5, November 2002, pp 1085-1088	
		Y. Gao, et al., "Probabilistic Inference of Hand Motion from Neural Activity in Motor Cortex," In Advances in Neural Information Processing Systems 14, The MIT Press, 2002, pp 1-8	
		Mijail Serruya et al., "Robustness of neuroprosthetic decoding algorithms," Biological Cybernetics, 2003, pp 1-10	
		Frank Wood et al., "On the Variability of Manual Spike Sorting," Brown University, Providence, RI, July 1, 2003, pp 1-19	
		Wei Wu et al., "Modeling and Decoding Motor Cortical Activity using a Switching Kalman Filter," Brown University, Providence, RI, July 1, 2003, pp 1-30	
		Jose M. Carmena et al., "Learning to Control a Brain-Machine Interface for Reaching and Grasping by Primates," PLOS Biology, Vol. 1, Issue 2, October 13, 2003, pp 1-16	

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		Nicolelis, Miguel A.L., "Brain-machine Interfaces to Restore Motor Function and Probe Neural Circuits," Nature Reviews, Neuroscience, Vol. 4, May 2003, pp. 417-422	
		Libet, Benjamin, "Unconscious Cerebral Initiative and the Role of Conscious Will in Voluntary Action," The Behavioral and Brain Sciences 1995) 8, pp. 529-566	

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